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Halloysites Stabilized Emulsions for Hydroformylation of Long Chain Olefins

von Klitzing R., Stehl D., Pogrzeba T., Schomäcker R., Minullina R., Panchal A., Konnova S., Fakhrullin R., Koetz J., Möhwald H., Lvov Y.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© 2016 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim Halloysites as tubular alumosilicates are introduced as inexpensive natural nanoparticles to form and stabilize oil–water emulsions. This stabilized emulsion is shown to enable efficient interfacial catalytic reactions. Yield, selectivity, and product separation can be tremendously enhanced, e.g., for the hydroformylation reaction of dodecene to tridecanal. In perspective, this type of formulation may be used for oil spill dispersions. The key elements of the described formulations are clay nanotubes (halloysites) which are highly anisometric, can be filled by helper molecules, and are abundantly available in thousands of tons, making this technology scalable for industrial applications.

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Keywords

catalysis, clay nanotubes, oil spill, Pickering emulsions

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